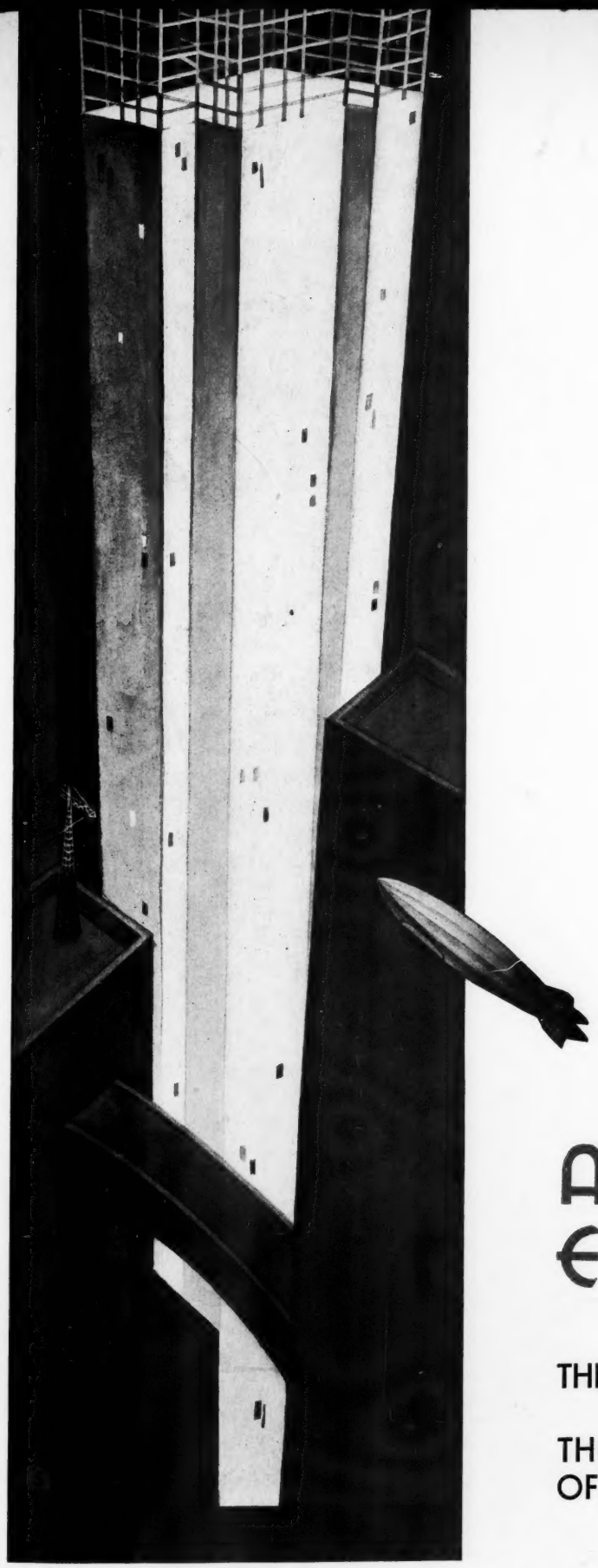

The AMERICAN ENGINEER

OFFICIAL PUBLICATION
THE NEW YORK STATE SOCIETY
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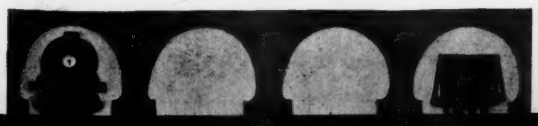
JULY + + + 1932



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Arthur V. Sheridan, Editor

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NUMBER 7 JULY, 1932

WHAT CONFRONTS THE YOUNG GRADUATE

Who Has Chosen Engineering As A Career

ONCE more a vast army has passed through the portals which open upon the vista of what is called the world of business. Ten thousand out of this great number have for from four to six years pointed themselves for careers as engineers. Has their choice been a wise one?

Were the present moment to be used as a criterion upon which to base conclusions there is little doubt but that many would feel their long and arduous training had been largely in vain. Engineers as a class are, along with labor, the first to experience the effects of widespread unemployment. Many splendid and successful members of the profession are today in dire straits and would welcome the most menial sort of labor as a protection against starvation. However the picture of the moment is but a partial one that will eventually give way to a more promising and accurate view of the future.

The civilization of the times is such that the engineer is indispensable to society and must become increasingly so as time advances. With the restrictions upon practice and the increased requirements of qualification, which are becoming more or less universal, there is little doubt of the possibilities the future holds for the professional engineer. A most important consideration is,—what steps will the embryo engineer take to place himself in a position to take advantage of these possibilities?

All too frequently the young man seeks work that offers the greatest immediate financial return. In many instances such work is not of a strictly engineering nature with the result that the scholastic training receives but little development in the field of application. One of the great benefits resulting from the existence of License Laws is the fact that every young man must serve what is in fact a real apprenticeship for at least four years after graduation. The present New York State Board of Licensing for Engineers is to be commended for its interpretation of the experience requirements of the law as they apply to young men. At least four years experience must be of a character satisfactory to the Board and the said Board insists that this experience shall be such that the applicant will have had the opportunity to apply the mathematics, physics, chemistry and other matter which he studied prior to graduation. Experience as a contractor, foreman, mechanic, office clerk or timekeeper is not acceptable training and very properly so.

Many young men do not seem to realize that four years of any kind of work is not within the intent of the experience requirement. They are quite indignant when told that their experience qualifications are not satisfactory. They are inclined to think that discrimination is responsible for their rejection. But are they entirely at fault? How are they to acquire the information at the proper time? The Board is doing its part to build up the profession in this direction. What are practising engineers doing to promote the same end? This is one of the problems the New York State Society is confronted with. To advise the youth in time is to serve the profession. Every student should point his work toward the attainment of his license. This means that his period of training should be at least eight consecutive years; four in college and four in the laboratory of experience, applying the knowledge acquired in the classroom.

The several chapters afford a splendid means of conveying to undergraduates of local engineering schools the information that will enable them to plan and point for admission to practice. Contacts between the Chapter and the neighboring institutions of learning should be established. Students might be invited to attend chapter meetings and practising engineers requested to address student bodies. Publications could be used as a means of advising students of the problems which must be mastered by every young man before he gains admission to the profession.

To the recent graduate one can offer no better counsel than to suggest: first, that the present economic conditions make it desirable to stay in school as long as one can afford to do so and, secondly, that four years of a real apprenticeship is a pre-requisite for examination and admission to practice engineering, in this state.

ENGINEERING EDUCATION

Committee Recommendations For New York Schools

THE following report of recent activities tending to bring about simplification and uniformity in Engineering courses is of especial interest to the profession:

THE UNIVERSITY OF THE STATE OF NEW YORK
The State Department of Education
Office of the Assistant Commissioner for Higher and Professional Education

Albany, June 2, 1932

MEETING OF COMMITTEE ON ENGINEERING
(Revised Minutes)

A conference of deans and heads of department of the schools and colleges of engineering in the State of New York was held at the invitation of the Education Department in the Regents Room of the State Education Building on April 2, 1932. The conference discussed problems related to degrees and courses of study in engineering and voted unanimously to request the Commissioner of Education to appoint a committee to make a special study of the questions presented by the Education Department and to report its conclusions and recommendations to the conference at some later date.

The Commissioner of Education accordingly appointed such a committee and it held its first meeting in the Regents Room of the State Education Building on May 16, 1932. The entire committee was present as follows:

Dean Joseph W. Barker, School of Engineering, Columbia University, Chairman.

Dean Dexter S. Kimball, College of Engineering, Cornell University.

Dean Collins P. Bliss, College of Engineering, New York University.

Dean Louis Mitchell, College of Applied Science, Syracuse University.

President Joseph E. Rowe, Clarkson College of Technology.

There were present from the Department: Harlan H. Horner, Assistant Commissioner for Higher and Professional Education; Herman Cooper, Associate in Higher Education; and Horace L. Field, Assistant in Charge of Qualifying Certificates. Dean Barker presided. Three series of questions were discussed as follows: degrees, courses of study and professional licensing examinations in engineering.

Degrees in Engineering

Employing the degrees now being conferred in the field of civil engineering by way of illustration, because all the schools and colleges of engineering offer courses in civil engineering, the Committee found the following situation in eleven institutions:

First or bachelor's degree

Bachelor of Science (B. S.)	1
Civil Engineer (C. E.)	2
Bachelor of Science in Civil Engineering (B. S. in C. E.)	5
Bachelor of Science in Engineering (B. S. in Eng.)	2
Bachelor of Civil Engineering (B. C. E.)	1

Second or master's degree

Master of Science (M. S.)	1
Civil Engineer (C. E.)	3
Master of Science in Civil Engineering (M. S. in C. E.)	1
Master of Civil Engineering (M. C. E.)	3

Professional degree

Civil Engineer (C. E.)	5

Thus it appeared that 11 institutions confer 5 different degrees as a first or bachelor's degree, 8 institutions confer 4 different degrees as a second or master's degree and 5 institutions confer the so-called professional degree of Civil Engineer (C. E.). The greatest confusion appeared in the use of this latter degree. It is conferred by 10 institutions as follows:

As a bachelor's degree at the completion of a four-year course	2
As a master's degree at the completion of a five-year course	3
As a professional degree based upon a bachelor's degree and experience	5

The Committee voted unanimously that in its judgment simplification of the present degree situation is desirable and possible.

The Committee then discussed the various degree programs as outlined in the initial agenda for the April 2nd meeting of the Deans and Heads of Departments. Length of the course of study in years was not felt to be an adequate basis for common action whereas the length of time spent on purely professional study was accepted as a more reasonable point of agreement. The pre-professional requirement was agreed upon as meaning substantially the completion of Mathematics through Integral Calculus, Physics, Chemistry and Mechanics. These subjects were considered by all to be pre-professional in nature.

The Committee further considered the problem of the degree sequence, B. S., M. S., etc., with specifying phrases. It was the unanimous opinion of the Committee that engineering had progressed in recognition as a distinctive professional faculty to the point where degrees granted upon recommendation of an Engineering Faculty should bear the name Engineering rather than Science.

The Committee then voted unanimously that the following proposal for engineering degrees in the State of New York be submitted for the consideration and criticism of the faculties in engineering and be reported for discussion at the next conference of the deans of the schools and colleges of engineering to be called by the Education Department after the opening of the next college year.

(Continued on Page 11)

THE NATION NEEDS A STIMULANT

From The Pacific Builder and Engineer – June, 1932

DAY by day there is being written one of the most unpleasant and disturbing chapters in the history of this nation. It is a chapter of political, economic and social retrogression. Now, however, there are definite signs that the chapter is approaching a climax, and that a happy ending may yet be written into the story.

Through the medium of the Reconstruction Finance Corporation, Congress stopped, or at least slowed down, the flood of bank failures. By balancing the budget, Congress has done much to restore confidence to the industrial and financial leaders of the country. These two accomplishments—the Reconstruction Finance Corporation and the balanced budget—constitute the nucleus of a firm foundation upon which this country may lift itself out of its emergency, *given sufficient time.*

The fly in this ointment is found in that word "time." Under present conditions, business cannot recover its old virility *with sufficient speed to meet the immediate emergency.* This emergency is *immediate.* If it is not met promptly and adequately this nation will find itself in the midst of a crisis disheartening to contemplate.

* * * * *

The nation is sick. It faces a slow recovery. The situation calls for an artificial stimulant that will carry the patient along until it can regain normal business health. An artificial stimulant capable of meeting this immediate emergency is an adequate program of needed public works, soundly conceived and soundly financed. This is not a remedy —it is a stimulant. It may not even be a perfect stimulant, but it is the best that has been suggested to date. But a stimulant is necessary—a stimulant strong enough to put our unemployed back to work at their normal occupations until the pulse of business again is normal, an end that probably cannot be realized before the spring of 1934.

It is *not* proposed that there should be a reckless, heedless, unreasoning expenditure of pork. It *is* proposed that needed highways and essential, self-liquidating building and public work projects be authorized for construction at the earliest possible date. This work could start within 90 days after appropriations had been passed; within six months hundreds of thousands of men throughout the nation could transfer from the breadline to gainful occupations.

* * * * *

Considerable froth has been spewed, especially in larger cities, about the proposal to build needed highways as a means of furnishing gainful employment. A certain handful of counties are thought to have small need for further road construction. The federal, state and county road programs have just begun. Needed highways correctly designed and honestly constructed should be included as one component of this stimulant that our ailing nation needs so badly right now.

* * * * *

As this is dictated, the Senate is getting ready to avoid administering this stimulant—although two weeks ago it was approved by the House. It looks as if the Senate is allowing partisan politics rather than calm judgment to dictate its stand. The Senate has indicated that it would approve a limited appropriation for direct relief of the unemployed—a sum that may be spent on doling out of free food, clothing and fuel, or be spent on "hunger gangs" assigned to pick and shovel work, or possibly issued as cash. *In any of these forms, such relief is a dole.* It is simply a poor means of maintaining life in the bodies of men, women and children after they have been reduced to abject distress. Even by the furthest stretch of the imagination, one can not hope that such direct relief will stimulate business. It will be a sedative, not a stimulant.

* * * * *

A federal dole will not enable you to pay your taxes, pay your grocer, pay your clothier, your interest on the money you have borrowed on your life insurance. A dole will not permit you to pay office rent, maintain an automobile, hire draftsmen, stenographers, bookkeepers.

But an adequate public works program will give you work not only on federal buildings, but on the residential and commercial buildings, of industrialists, merchants, clerks and laborers who by virtue of revenue derived—directly or indirectly from the federal construction program will find themselves able to erect buildings they need.

* * * * *

If when you read this page the Senate has not yet voted for the construction of needed public works, sit you down and write a telegram or air-mail letter to your senator. Tell him: "Much obliged for balancing the budget and congratulations on the success of the Reconstruction Finance Corporation. NOW MEET THE IMMEDIATE EMERGENCY BY VOTING FOR IMMEDIATE CONSTRUCTION OF NEEDED PUBLIC BUILDINGS AND PUBLIC WORKS, SOUNDLY CONCEIVED AND FINANCED."

Comment: The above article, as noted, is a reprint from a Pacific Coast publication. Despite the attitude of the President of the United States toward the program set forth by the American Society of Civil Engineers and other groups it is daily becoming more evident that the present situation demands constructive measures to put back to work millions of willing and long-suffering Americans. It is from the bottom up, rather than from the top down, that relief must be inaugurated.

WHAT IS WEALTH?

Must Humanity Depend Upon A Single Medium

FOR more than a century, or since Nathan Rothschild, apprised in advance of the rest of England of the outcome of the battle of Waterloo, bought and sold stocks in such manner as to net over a million pounds profit, an enormous sum in those trying days, the marts of the world have resembled gaming tables rather than centers of distribution for creative effort. Great fortunes have been built up by means of speculation and have placed in the hands of a comparative few control of the medium of exchange upon which so much of humanity must depend for its very existence. The absolute necessities of life have become unattainable except through that medium, the possession of which has been the obsession of mankind.

Such a situation is not alone a reflection upon the moral sense of man but conducive of an eventual disorder so widespread as to promote chaos instead of civilization. One does not need to be a very profound philosopher to realize that the creation of wealth, which latter is, after all, but a store or accumulation of those things which men desire to possess, cannot be indefinitely equated with a single element mined from the bowels of the earth. Suppose for a moment that the supply of gold ceased entirely, would wealth remain stationary, whilst humanity increased and science and machinery multiplied the potential productive powers of mankind? Would this nation, possessed of a superabundance of food, clothing and shelter, starve to death or succumb to the elements if all the gold in the mints and banks of the United States were to be dissipated by explosion or other unforseen catastrophe? It would indeed be a sad commentary upon human intelligence and human morality to make such an admission. Yet, the same is an inevitable deduction resulting from the concept of wealth which is today the basis of dogmatic pronouncements by so-called experts upon both sides of the Atlantic Ocean.

The 19th century economists and financiers have so strongly dominated the affairs of mankind that the scholastic world has been teaching youth to recognize capital as co-equal with nature and labor in the production of wealth. The causes of wealth are dogmatically set forth as nature, labor and capital. Such a doctrine is fundamentally wrong, with the result that the application must invariably lead to unhappy conditions. Nature and labor alone are causes. Capital is primarily an effect, notwithstanding its usefulness as a secondary or contributory cause for expansion. A surplus of food is fundamentally capital, but its value as a cause can scarcely be advocated by any rational process of thought. Only the existence of a medium, so relatively permanent in nature and small in quantity that possession in bulk is humanly possible, gives to the surplus the appearance of capital. The wonder is that the system has not long ago collapsed.

That the standard of wealth has survived as well as it did can be directly accounted for by the fact that science and engineering have contributed so much to civilization during the past century and the changes have come so fast that no widespread liquidation took place within that period, with the result that credit was accepted in lieu of the medium of gold. It required a catastrophe such as the World War to bring about the necessity for a liquidation and an appreciation of the fact that the supply of gold, or of any other single element, cannot keep pace with the creation of material things and the production of the necessities and conveniences of life, without giving to that gold a value such that its possession by relatively few can deprive the rest of mankind of any share in the wealth which it has created.

Engineers as the greatest creators of wealth and of urban civilization should give themselves seriously to the consideration of the great world problem of effecting a wider distribution of the real wealth of mankind. Gold or any precious metal is not in itself wealth. Perhaps no one contends it is, but possession of the metal has been so long accepted as such that a nation or a person devoid of fertile lands and willing laborers, but possessed of gold can cause suffering upon the part of those living in the midst of a superabundance created by their own constructive efforts. The fallacy of such a system is gradually becoming manifest and it must eventually give way to something which will afford greater protection to the human being who is willing to labor for the right to live.

The engineer enjoys a unique position. First he, more than any other, has produced the material wealth of the world; secondly, he has never been led astray through reasoning from false premises. To him every step of a process must be proven before proceeding. Whoever is to develop a plan for the betterment of human society must cast aside the ramifications of man made financial doctrines, attack the problem with fundamental principles and keep them always within the province of his scheme.

The first requisite of an approach to the all consuming problem, is the realization, long overdue, that the so-called financial expert and his theories, which have been preached as gospel from the housetops for the past generation or two, are about as essential to the contentment and preservation of society as was the King, who knowing all, owning all and determining all, could do no wrong. A new order is at hand. It will be a planned order in which many will participate. Whether it will permanently be for good or for evil remains for posterity to contend with. In any event some plan for relieving the present paradox—of the greatest want in history in the midst of the greatest abundance ever known to man—must be conceived. For the development of such a plan the engineer is singularly equipped. To him humanity must turn, at least temporarily, in its endeavor to reconcile a changing civilization with an unchanging humanity.

INGENIEUR

ADVANCES IN STRUCTURAL ENGINEERING DURING 1931

By D. B. Steinman, Consulting Engineer

President, New York State Society of Professional Engineers
Chairman of Structural Division, American Society of Civil Engineers

IN the history of structural engineering, 1931 will be recorded as a most significant year. It witnessed the completion of a number of epoch-making structures, establishing new far-flung marks of achievement in Man's front-line battle to force outward the barriers that separate his efforts from the impossible. The year 1931 also recorded notable progress and development in new structural methods and materials.

Suspension Bridges

The longest span of any type thus far successfully achieved by human ingenuity and resourcefulness was completed in 1931. The George Washington Bridge has the record-smashing span-length of 3,500 feet. This may be compared with the previous record lengths of bridge spans, as follows:

1889—Forth Bridge, Scotland, (cantilever), 1,700 feet.

1917—Quebec Bridge, Canada, (cantilever), 1,800 feet.

1926—Philadelphia-Camden Bridge, (suspension), 1,750 feet.

1929—Ambassador Bridge, Detroit, (suspension), 1,850 feet.

1931—George Washington Bridge, New York, (suspension), 3,500 feet.

The George Washington Bridge, built at a cost of $60,000,000, contains approximately 70,000 tons of structural steel and 30,000 tons of cable material. The four cables establish a new record of magnitude. Each cable is 36 inches in diameter, and contains 26,474 wires. (The largest cables previously constructed were those of the Philadelphia-Camden Bridge, two in number, 30 inches in diameter, each consisting of 18,666 wires.)

1931 also marked the completion of the world's longest suspension span employing rope-strand cables. This is the St. Johns Bridge at Portland, Oregon, with a main span of 1,207 feet. Each cable, 16¾ inches in diameter (larger than the cables of the Brooklyn Bridge), is made up of 91 twisted strands of steel wire, each strand 1½ inches in diameter. This method of cable construction, departing from the conventional parallel wire construction, offers savings in cost and time. The strands are prestressed at the manufacturing plant, thereby eliminating non-elastic stretch and consequently raising materially the effective modulus of elasticity. Two other suspension bridges of the same type of cable construction were completed in 1931. These are the Waldo-Hancock Bridge over the Penobscot River in Maine, with a principal span of 800 feet; and the Maysville (Ky.) Bridge over the Ohio River, with a main span of 1,060 feet. In all of these bridges, novel features of design and construction were introduced, and new records for speed and economy of erection were established.

In the year 1931, plans were completed and bids were opened for the construction of the proposed Golden Gate Bridge at San Francisco, to have a new record-breaking span-length of 4,200 feet. Commencement of construction was prevented, however, by financing and legal difficulties.

Other pending projects for spans of unprecedented dimensions are Lindenthal's plans for a Hudson River Bridge at 57th Street, New York, with a span-length of 3,600 feet; and Robinson & Steinman's plans for the proposed Liberty Bridge to span the Narrows at New York, with a main span of 4,500 feet, 1,000 feet longer than the span of the George Washington Bridge.

Steel Arches

The year 1931 marked the completion of the two longest arch spans in the world. These are the Kill Van Kull Arch Bridge at New York with a span-length of 1,652 feet, and the Sydney Harbor Bridge at Sydney, Australia, with a main span of 1,650 feet. (The record was previously held by the Hell Gate Arch Bridge, with a span of 977½ feet, completed in 1917.)

Concrete Arches

The world's longest-span concrete arch bridge was completed (1930-1931) at Brest, France, with three spans, each of 612 feet. This achievement greatly extends the conception of practicable span-lengths in reinforced concrete. It was made possible by the application of the novel Freyssinet method of design and construction, in which crown jacks (incorporated in the arch ribs) are used to introduce initial compression to compensate for the decentering stresses.

The first concrete arch bridge to be built in America by the Freyssinet method, the Rogue River Bridge in Oregon, was constructed in 1931. This has seven spans of 230 feet.

The longest-span concrete arch bridge in America, the George Westinghouse Memorial Bridge at Pittsburgh, with a maximum arch span of 460 feet, was also constructed in 1931.

Buildings

The greatest structural height attained by Man was recorded in 1931 in the completion of the Empire State Building, at New York, with a tower height of 1,248 feet. The design of this building established a new mark of engineering achievement in the structural problems involved. New contributions to engineering knowl-

(Continued on Page 11)

THE LICENSE LAW SINCE 1920

By Roy G. Finch, Secretary—Engineers' Board of Examiners

A most interesting history of the New York License Law has been prepared in chart form by R. G. Finch, Secretary of the Board of Examination of Professional Engineers. In it may be found in concise form the answer to practically all the questions which have arisen regarding the requirements and interpretation of the law since its inception.

COMPARISON OF THE PROVISIONS OF CERTAIN PORTIONS OF ARTICLE 55 OF THE EDUCATION LAW AS AMENDED BY CHAPTER 85, LAWS OF 1927, BY CHAPTER 678, LAWS OF 1931 AND BY CHAPTER 468, LAWS OF 1932

Previous to April 24, 1931	April 24, 1931 to March 28, 1932.	Subsequent to March 28, 1932.
	PROFESSIONAL ENGINEER	
	Applications.	
Application for issuance of certificate of license shall be made on prescribed forms. Section 1457.	Applicants for license shall make application therefor on prescribed forms. Section 1457.	No specific provision that application shall be made, and no provision for prescribed forms. Section 1452.
No provision.	If an applicant fails to obtain a license as a result of his first application, he may make a second application without the payment of an additional fee. Section 1457.	Slight change in wording, but no change in provision. Section 1452.
	Evidence to be submitted by applicant.	
Age: Not less than 21 years. Section 1457.	**Age:** Must be more than 25 years of age. Section 1457.	**Age:** No change. Section 1452.
Citizenship: No provision.	**Citizenship:** Must be a citizen of the U. S., or have made legal declaration of intention to become a citizen. Section 1457.	**Citizenship:** No change Section 1452.
Character: Must be of good character and repute. Section 1457.	**Character:** Must be of good moral character. Section 1457.	**Character:** No change. Section 1452.
Educational Requirement: No provision.	**Educational Requirement:** Satisfactory completion of a 4-year high school course or the equivalent thereof, approved by the department, and such further educational requirement as the department may determine. Section 1457.	**Educational Requirement:** Satisfactory completion of an approved 4-year high school course, or the equivalent thereof, as determined by the department. Section 1452.
	Must successfully pass the prescribed examinations. Section 1457.	Must pass prescribed examinations. Section 1452.
	(a) Prior to January 1, 1937:- The board may exempt from all or any part of the examinations, a graduate of a registered college or school of engineering. Section 1457.	(a) Prior to January 1, 1937:- Slight change in wording, but no change in provision. Section 1452.
	(b) Subsequent to January 1, 1937:- In meeting the educational requirements, or such part thereof as the department may determine, an applicant, before admission to examinations, must submit evidence that he has graduated from a registered college or school of engineering and that prior thereto, he has satisfied the pre-requisites for admission thereto. In lieu of graduation, an applicant may be admitted to the examinations, who has had 12 years of acceptable practical experience. Section 1457.	(b) Subsequent to January 1, 1937:- Every applicant shall be required to pass the examination, except as noted elsewhere, and before admission thereto, shall submit evidence that he has graduated from a registered college or school of engineering. In lieu of graduation, an applicant may be admitted to the examinations, who has had 12 years of acceptable practical experience. Section 1452.
Examinations: May be required. Section 1457.	**Examinations:** Shall be held twice each year by the department in at least 3 convenient places in the state. Section 1457.	**Examinations:** Change in wording, but no change in this provision. Section 1452.
No provision.	Examinations shall be in writing and in English. Section 1457.	No provision.
No provision.	No provision.	Every applicant, otherwise required to take an examination, shall be required in addition to all other requirements, to pass a written examination on the planning, structural design and supervision of construction of buildings and similar structures. Section 1452.

(Continued on Page 15)

NEW YORK NEWS

HOUSING PROPOSAL FOR CITY OF NEW YORK

City Affairs Committee Advocates Department

A public housing conference whose object as set forth is: "To promote good housing, through governmental loans and public construction, accessible to those people who cannot be adequately housed at present at rents they can afford to pay," has petitioned the Board of Estimate and Apportionment of the City of New York to enact legislation necessary for the creation of a Department of Public Housing.

The following letter addressed to the members of the same Board contains the details of the proposal:

"There appears to be good reason to expect that a compromise federal relief-construction bill, acceptable to the President and the members of Congress, will be enacted into law at an early date. In view of the proposal that federal loans shall be provided to municipal authorities for the purpose of income producing construction projects, the Public Housing Conference urges upon you the importance of holding a special meeting of the Board of Estimate to take the necessary steps toward the creation of a City Department of Housing. The city should not delay in initiating a program of slum clearance and low cost home construction now that it seems certain that at least one billion dollars will be appropriated by Congress for self-sustaining public works. Housing at eight dollars per room per month could be self-sustaining in New York City; the money can be secured, and we urge that you press for it vigorously and create an appropriate agency to use the funds of the Reconstruction Finance Corporation for this purpose.

"We suggest that the Federal government be asked for at least $25,000,000 for public housing construction in New York City as soon as the bill is passed. The building industry is in active, and while surrounded by all of the necessary tools for producing a great number of low-rental homes, carpenters, bricklayers, painters and other workers in the building trades and allied industries in Greater New York are idle. Architects and building contractors find difficulty in holding their organizations together, and look about with deep concern for some medium of stimulating their important industry to coordinated and steady activity. A city housing authority, prepared to carry out a program for demolishing of a large number of obsolescent houses and the substitution of new dwellings of quality would provide this medium.

"The reports of the Tenement House Commission of New York, supplemented by figures released at various times by the State Board of Housing, have made known the fact that today—as well as for many years past, great numbers of the citizens of this city are regularly obliged to bring up their children in dwellings which are below every modern standard of health, sanitation and safety. We know that such inadequate housing accommodations are the only kind accessible to weekly wage earners at rents they are able to pay, for no new housing even that provided under the terms of the State Housing Law, reaches down to the needs of the average working man.

"We find the market well supplied with houses which can be secured for a monthly payment of fifteen dollars per room per month, or even less, but practically no dwellings have been constructed for many years to rent at seven or eight or even nine dollars per room. Private builders, both speculative and investment, have never been and are not now prepared to enter the non-competitive field of low cost construction, for private industry, by its very nature, works for profit.

"The municipality is the only agency which is in a position to acquire land at non-speculative prices and in large parcels, and at the same time to obtain funds in sufficiently large quantities and at low rates of interest, and to amortize slowly and cheaply. The social importance of housing has long been recognized. In the studios of crime, disease and fire hazards, bad conditions of housing are invariably pointed out as a liability to the entire community. By the operation of a public housing service the city might well affect a reduction in the maintenance of several other departments. Moreover, because the physical home environment is so vital a force in the life of a family, the construction of great numbers of homes of low cost and high standard would contribute to the development of new generations of healthy, constructive citizens.

"No other agency is in so good a position to understand the needs of the people as the city itself; no other body so well equipped to carry through a slum clearance and re-housing program which will not only provide jobs for many working men but at the same time promote the general welfare of the community.

"We appeal to you to give serious consideration, therefore, to the establishment of a City Housing Department along the lines of some plan similar to that which we submit below. We recognize that this will necessitate state legislation, and we further urge that a special session of the legislature be called to give the city the authority to create such a department.

"The plan we propose has been suggested by a special committee of the Public Housing Conference and is as follows:

"I. **Administration** (1) The housing service should be administered by a City Department of Housing, its duties to be fully described in the city charter. (2) The program of the Department of Housing should be under the direct supervision of a Commissioner of Housing—a man of outstanding ability and high standing in the community, appointed by the Mayor. (3) All plans and proposals should be prepared by the Department of Housing, for acceptance by the Board of Estimate.

"II. **Finance.** (1) The municipality would secure funds for slum clearance and rehousing through (a) the sale of municipal bonds included within the regular debt limit, the bonds to be paid for entirely by rentals and not by taxation; (b) loans made through the Reconstruction Finance Corporation to the municipality for the purpose of facilitating construction projects, to be paid back entirely from rentals.

"(2). (a) Income from the provisions of dwellings would be produced by rentals charged to the occupants thereof; (b) all costs should be included in the rentals charged except for certain exemptions from taxation.

"III. **A Plan.** (1) A comprehensive housing plan should be made for the entire city area, based upon the housing needs of the people in each Borough, and each housing project should be related to this city-wide plan. There should be a correlation between the home construction program and the development of transportation and other services.

"(2) No project should consist of less than a neighborhood unit, and all units should be designed to provide facilities for community activities, including play space, stores, recreation rooms, et cetera.

"(3) The standard in regard to the lighting and ventilation of rooms as well as to land coverage should be at least as high as that observed in the projects developed in accordance with the State Housing Law.

"IV. **Clearance Procedure.** In order that present occupants of substandard dwellings may be rehoused by the city—on the same site or elsewhere, there should be outlined in the city charter detail procedure for slum clearance. This should cover condemnation of a slum tenement or area, possession of the land, compensation to the owner and the subsequent preparation of a scheme of rebuilding.

"V. **Building.** To have the advantage of financing outlined under II, 1 and 2, new construction whether on former sites or elsewhere, should be carried on by the City Department or Housing and/or by cooperative housing societies and public limited dividend companies working under its supervision.

"VI. **Management and Operation.** The houses constructed by or under the supervision of the City Department of Housing should be managed and operated by a special sub-division of the Department and/or by a non-commercial or cooperative managing society operating under its supervision.

"VII. **Rents.** That the municipal housing program may at every point be planned directly to accommodate those whose needs are not being met by private enterprise, dwellings should be erected to house families whose

annual income is not more than $1,500, and who should not therefore pay more than one-fourth of their income, (or $8 per room per month) for rent. As is the case with the city hospital service—a statement of patient's economic condition being required to accompany application for free or reduced rates, so should applicant for residence in a municipal dwelling be obliged to prove his inability to pay more for rent than the amount charged by the city for its public housing service."

Comment: The recommendation, which if carried out will doubtless result in similar activities upon the part of many municipalities, has not alone the merit of being a move to eliminate slums and provide modern homes for small salaried families, but, at this time, would prove a boon to architects, engineers, contractors, mechanics, laborers and material men and many others whose present existence is at best a precarious one. The desirability of creating a new department is, however, questionable. The functions of the Tenement House Department should long ago have been incorporated with those of the Buildings Departments. A constructive proposal would be to place all present building matters within the jurisdiction of the Superintendent of Buildings in each of the respective boroughs and permit the Tenement House Department, which is the logical existing agency, to assume control of public housing programs in the manner suggested for the proposed Department of Public Housing.

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CHAPTER ACTIVITIES

KINGS COUNTY CHAPTER

On June 16th the King's County Chapter held its last meeting of the 1931-32 season at the Brooklyn Engineers' Club. At this meeting the Building Code Committee, composed of Mr. Charles R. Ward, Chairman, Frederick Ward and President C. W. Burke (ex-officio), which had been collaborating with the Brooklyn Chamber of Commerce, reported that a revised draft of the Code had been completed and submitted to the Merchants' Association of New York under whose auspices the Building Code had been prepared. It is anticipated that the revised draft which amplifies the powers of Professional Engineers in the field of building construction will be approved.

The Chapter manifested an interest in the work of the recently created Citizen's Budget Committee which has been organized for the purpose of cooperating with the municipal government of the City of New York in an effort to minimize the city budget for the year 1933. The Chapter advocates the combined participation of the five (5) Chapters of the city in this activity and authorized the appropriation of funds covering the Chapter's share of the cost of membership in the Committee. It is the conviction of the Chapter that the counsel of engineers would be of peculiar value to this citizen group in its work of budget making.

Renewed interest in the matter of license law violations has been evidenced and several cases of apparent violations have been recommended to the consideration of the State Department of Education. Recognition of this intensification of interest prompted the extension of invitations to Mr. James O. Hoyle, Inspector for the Professions of the State Education Department, and Mr. J. Parkinson, Deputy Attorney General of the State of New York. These gentlemen, who were the guests of the Chapter, most informatively described the evidence requirements needed to successfully prosecute violators of the license law and volunteered their aid to the Chapter in its endeavors to enforce observance of the law.

Mr. Roy C. Cram, the "live-wire" Secretary of the Chapter, courteously furnished the information embodied above and also submitted an interesting report of a recent important event which is printed verbatim below:

"Public recognition of the work professional engineers are doing in advancement of the public welfare was the occasion of a luncheon given by the Brooklyn Chamber of Commerce and attended by 250 civic leaders, engineers and business men of Brooklyn and Queens at the Hotel St. George in Brooklyn on June 29, 1932, in honor of the Official Planning Committee for the Atlantic Avenue Improvement.

"This Committee is composed of fifteen professional engineers under the chairmanship of Leon G. Godley, Transit Commissioner and was designated by the Board of Estimate of the City of New York to prepare plans in solution of the much debated and too long deferred project for the elimination of 20 grade crossings of the Long Island Railroad in Atlantic Avenue between East New York in Brooklyn and Jamaica in Queens.

"Under discussion for many years and beset with difficult engineering problems as well as a source of numerous accidents, Atlantic Avenue has been another Death Avenue situation not unlike the Eleventh Avenue problem in Manhattan where the West Side Highway now being completed, has been the solution. Further, Atlantic Avenue is the main arterial highway from Brooklyn to Jamaica and all Long Island, leading as it does to the Sunrise Highway. However, its use as such has been greatly restricted and it does not now serve its full purpose.

"After long study, a final plan unanimously endorsed by its members has been presented by the Committee and this plan has the public endorsement of the Brooklyn Chamber of Commerce, the Borough Administration, the Atlantic Avenue Improvement Association, the Downtown Association of Brooklyn and the Civic Councils of Brooklyn and Queens.

"The plan calls for a boulevard 125 feet wide over the depressed tracks of the Long Island Railroad for a distance of 5 miles and the project will cost $23,000,000, which is to be borne jointly by the State of New York, the City of New York and the Long Island Railroad under provisions of the Grade Crossing Elimination Law.

"It was a signal compliment to the engineering profession that the Board of Estimate, after hearing many proposals in solution of the problem, turned it over to an engineering group to find the answer.

"The personnel of the Official Planning Committee, which has been so signally honored, is as follows:

"Hon. Leon G. Godley, Chairman, Commissioner Transit Commission; Albert H. Chandler, Asst. Engr. Topographical Bureau, Borough of Queens; H. C. Crowell, Asst. to Chief Engineer, Pennsylvania R. R. Co.; *Oscar Erlandsen, Consulting Engineers, Borough of Queens; *Philip P. Farley, Consulting Engineer, Borough of Brooklyn; Albert J. Fearing, Assistant to Chief Engineer, Pennsylvania R. R. Co.; Henry Heins, Assistant Engineer, Transit Commission; Wm. C. Lancaster, Chief Engineer, Transit Commission; George Patton, Assistant Chief Engineer, Long Island R. R. Co.; Charles U. Powell, Engineer in Charge, Topographical Bureau, Borough of Queens; *Aaron I. Raisman, Designing Engineer, Board of Transportation; *Robert Ridgway, Chief Engineer, Board of Transportation; W. L. Selmer, Chief Engineer, Grade Crossing Division, Transit Commission; Wm. J. Shea, Assistant Engineer, Board of Estimate; *Herman H. Smith, Chief Engineer, Board of Estimate; Arthur S. Tuttle, Consulting Engineer, Board of Estimate.

(*Members of the New York State Society of Professional Engineers).

"King's County Chapter, of the New York State Society is represented on the Committee by Philip B. Farley, Consulting Engineer, Borough of Brooklyn, while Queens County Chapter is represented by Oscar Erlandsen, Consulting Engineer, Borough of Queens."

(Signed) ROY C. CRAM,
Secy. Kings Chapter.

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ALBANY COUNTY CHAPTER

The Albany County Chapter, at its June meeting, took a definite stand in advocating the prosecution of physical public improvements, as an effective means of combatting the existing depression, by adopting the following resolution which was forwarded to the Mayor of the City of Albany.

"WHEREAS, the recent sale of bonds of the City of Albany is indicative of a healthy financial situation as respects the City, and

"WHEREAS, the City enjoys a reputation of being as little affected by the present economic situation as any community within the United States, and

"WHEREAS, from the observation of its members, the Albany Chapter of the New York State Society of Professional Engineers, composed of licensed professional Engineers of the State of New York residing in and near the City of Albany, is of the opinion that this condition is largely, if not entirely, due to the fact that certain construction work of importance, viz., the Port of Albany, and the bridges spanning the Hudson River, are being prosecuted at this time, and to the stabilizing force of the em-

ployees of the State of New York residing in and near Albany, many of whom have been little if any affected by reductions in their incomes, and also to the wide diversification of the industries upon which Albany depends, and

"WHEREAS, this Chapter is of the opinion that unless this condition with respect to construction work is maintained, Albany will tend to fall into the class of many other communities in the State which are vitally and sorely affected by lack of employment, and

"WHEREAS, because of the aforesaid financial situation and also becouse of the need for certain construction work, viz., additional high school facilities, improved viaduct crossings of the Sheridan Ave. valley, extension of Quay Street, widening Central Ave. underpass (provided delay is due to the City), and Whitehall Road extension, it seems possible to institute these construction works at the present time, thereby decreasing unemployment to that extent, and

"WHEREAS, from its experience, the members of this society realize that such construction works can be accomplished at this time at the lowest possible cost attainable for many years in the past, and probably at the lowest possible cost for many years in the future, it is

"RESOLVED, that it be and is the sense of this Society that there should be conveyed to the Mayor of the City and through him to the proper officials thereof, the opinion of this Society that there should be no curtailment in public expenditure upon major projects to be performed within said City, the need for which has been clearly established, and that the Society respectfully urges upon said Mayor and other City officials that any such construction work heretofore abandoned or postponed be immediately undertaken to the end that there may be avoided the necessity of further drain upon the resources of the city and its citizens in the form of contributions made to support those who are ready and willing to perform work in exchange for a reasonable compensation; and it is

"FURTHER RESOLVED, that the President of the Society shall forthwith transmit a copy of this resolution to the Mayor of the City of Albany, with the request that he transmit a copy thereof to such officials of the city government as should properly be advised of the opinion of this Society so that such action may be taken as may seem wise, reasonable and proper."

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QUEENS COUNTY CHAPTER

Through the courtesy of Mr. W. A. Mellny, Secretary of the Chapter, the following information has been received regarding the transactions at the meeting of the Chapter which was held at the Medical Society Building in Queens County on June 30th.

The Law and Ethics Committee was commissioned by the President of the Chapter, Mr. J. Franklin Perrine, to draft a Code of Ethics for the chapter to conform in principle with the Codes which have been adopted by the New York State Society and other Chapters.

Upon the motion of Mr. Andrew K. Johnson, Vice-President of the Chapter, the secretary was requested to forward a resolution of appreciation to Mr. A. V. Sheridan, Past President of the State Society, for the service he rendered to the Profession and to the Chapter by his eloquent address at the dedicatory ceremonies of the Mall of Engineering which were held on June 18th. Mr. Sheridan's address received complimentary notice in the news and editorial columns of the public press and was a notable contribution to the campaign of education which is being carried on for the purpose of awakening the public mind to a fuller understanding and appreciation of the value of engineering services and accomplishments.

The Chapter is preparing for the 1932-33 season and arrangements are being made for a motion picture lecture to be delivered at the first meeting in the Fall in cooperation with the Medical Society of Queens County.

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BRONX COUNTY CHAPTER

The members of Bronx County Chapter will be afforded an opportunity of getting together under gala circumstances at an outing which will be held during the summer vacation period—in August. The Outing Committee is composed of Edward T. Crinnion, Chairman; Raymond C. Van Wagner, Vice-Chairman; Robert Eagar, Leo A. Hickey, Rudolph C. Lang, Frank A. Rappolt, Raphael J. Smyth.

The Chapter Outings of the past have all been highly successful from a social viewpoint and reports indicate that a large percentage of the membership is looking forward with joyful anticipation to the coming "fiesta."

The Rotary Club of The Bronx on July 5th with appropriate ceremonies inducted into the office of the presidency one of the outstanding citizens of the county and one of its leading engineers, Mr. Arthur V. Sheridan.

The presidency of a Rotary Club, the membership of which is, by constitutional restriction, composed only of most reputable representatives of the business and professional life of a community is a high honor to be conferred on any citizen. Election to this office in a community like The Bronx with its population of 1,300,000 persons is a rare distinction to be conferred upon an engineer.

Mr. Sheridan's brilliantly effective administrations as President of the Association of Engineers of New York and of the New York State Society of Professional Engineers augurs well for his successful assumption of the honors and responsibilities of his new office. His skill in tempering forcefulness with diplomacy developed during his years of leadership among engineers (who are not renowned as a class for tractability under organization restraint) should stand him in good stead in successfully administering the affairs of the organization which he is now called upon to head.

A host of well wishers among the engineers of New York extend cordial congratulations to one of their number whose advancement is the reward of continued and efficient pursuit of high ideals of disinterested service to his fellows.

RAPHAEL J. SMYTH,
Chairman, Committee on
Chapter Activities.

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Advances in Structural Engineering During 1931

(Continued from Page 7)

edge are recorded by the special windbracing studies preceding and following the completion of the structure.

The application of welding to steel building construction was greatly extended in 1931. Improved standard specifications and methods of testing and inspection for welding were developed.

Progress was recorded in the design of windowless buildings, lighted and ventilated entirely by artificial means. Plans were completed for a $1,500,000 windowless factory at Fitchburg, Mass.

Plans were completed, by the engineers and their associated architects, and construction was commenced on Radio City, in New York, a group of buildings to cost $250,000,000. This is one of the largest building enterprises thus far undertaken, and has involved unique problems of planning and design.

Aircraft

The world's largest Zeppelin, the Akron, was completed for the U. S. Navy in 1931. This is a triumph of aeronautic and structural engineering. It is the largest, fastest, strongest airship the world has ever known. With a length of 785 feet and a maximum diameter of 133 feet, it has a gas capacity of 6,500,000 cubic feet, 2½ times the size of the Los Angeles.

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Engineering Education

(Continued from Page 4)

Courses of Study

The attention of the Committee was called to the Regulations of the Commissioner of Education dealing with the registration by the Education Department of courses of study in schools of engineering. These regulations relate in broad terms to the equipment and resources of a school of engineering, its provision for practical summer field or shop work, its technical library and the annual appropriation for its maintenance, the number of its full-time salaried instructors and the professional training of its technical faculty, the length of the college course and its annual duration, the distribution of technical and other courses and the admission requirement.

It was the unanimous judgment of the Committee that it would be undesirable for the Education Department to elaborate its regulations governing the registration of courses of study in schools of engineering but that it might be desirable for the Department, after exercising its usual procedure, to consult with a committee or with a Council in Engineering representing the recognized engineering institutions in the State before taking final action upon applications for registra-

(Continued on Page 14)

NEW JERSEY NEWS

A FEW SUGGESTIONS

Concerning the American Engineer

It is now three months since the American Engineer became the official publication of the New Jersey State Association. The comments to date have been such as to hope for continued expansion for both the Association and the Magazine.

A number of articles have been received from individuals with the request that the same be published. In some instances proposals have been suggested with a view to regular contributions along specific lines.

The American Engineer wishes to advise that its policy does not permit the publication of scientific or technical papers dealing with particular projects. Every attempt has been made to avoid duplication of the matter printed in other publications. It is most essential that the American Engineer avoid the field which rightfully belongs to engineering and technical journals whose purpose it is to convey such information to their readers.

The magazine also does not print matter which might be construed as advertising any individual or his particular field of practice. The reasons for this are obvious and engineers are urged to bear this in mind when preparing and submitting matter for publication.

Approximately 7,000 persons now receive the American Engineer and its usefulness as a medium is apparent. For the purpose of advertising, provision has been made through the insertion of professional cards. This is consistent with the generally accepted restrictions of professional ethics.

The primary object of the publication is to keep the membership of the New York and New Jersey Professional Societies advised of matters pertinent to the welfare of the engineer as an individual and the profession as a whole. Legislation, requirements for the right to practice, codes of ethics and practice, education of engineers, contacts with civic and professional groups, participation in every day affairs, recognition of the engineer and various similar activities offer a sufficient field without encroaching upon the provinces of other publications.

One of the most effective mediums for promoting the welfare of the engineer, both as a citizen and as a professional man, is the Chapter. The opportunity for service to a community is almost unlimited and the participation in civic affairs in local centers goes a long way toward establishing the engineer as a useful and necessary member of society.

Various activities, particularly in New York have in many instances brought Chapters into a position of prominence, second to that of no civic or professional group within the county. Such activities are recommended to all chapters.

One of the most useful fields of the American Engineer is the dissemination of Chapter News and Activities. Such news acts as an incentive to every chapter.

Will you not forward promptly every month, on or before the first day thereof, news concerning your chapter? Your co-operation in the publication of the magazine will be greatly appreciated and in addition you will be rendering a service to your fellow practitioners of the State of New Jersey.

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SOUTH JERSEY CHAPTER

The South Jersey Chapter greets our new State publication with enthusiasm and interest. We congratulate our State officers on their progressiveness, both in creating a State publication, and in joining with the New York State Society in the use of the "American Engineer."

The South Jersey Chapter's officers for this year were elected at the annual meeting held in the Walt Whitman Hotel, Camden, on January 28th, 1932. They are as follow:—President, Mr. Beale M. Scnmucker, Court House, Camden, N. J.; Vice-President, Mr. Benjamin M. Sleeper, Burlington, N. J.; Secretary, Mr. J. Owen Carter, Woodbury, N. J.; and Treasurer, Mr. Harry Marvin, Woodlyne, N. J.

The June meeting for the same was held on June 15 at the Bridgeton County Club. Arrangements made by Mr. E. H. Maier. There was a golf tournament won by Frank Higgins, with a booby prize which went to Harry Marvin for building up a large score instead of a small one. All scores would have been materially reduced if the mosquitos had held their first summer convention on another date, or if the nineteenth hole had been played first. The roast duck dinner made up for the mosquitos, however, to say nothing of that nineteenth hole.

The next meeting will be held on August 19th, in the form of an outing at the Municipal Park of Egg Harbor City. It is to be hoped that the mosquito convention does not fall due on the same date. Such a calamity would seem to be more than a mere coincidence.

MARSHALL N. HAMMON JR.,
Chairman, Publicity and
Program Committee.

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PATERSON'S DEBT TO MAJOR L'ENFANT

Alexander Hamilton, Washington's secretary, Aide-De-Camp, Secretary of the Treasury and ardent friend, foresaw with his chief, as with miraculous vision, the greatness of this country to be.

It was he who said, "One day on the west bank of the Hudson the world's greatest city will rise." It was he who, to encourage manufacture in the states just freed from Great Britian's domination, established the industrial center about the Great Falls of the Passaic River at what is now the City of Paterson. It was he who discerning the ability and skill of Major Pierre L'Enfant in laying out the city to be named for his illustrious chief, drew him to New Jersey to give thought to the planning of New Jersey's first industrial city.

One has only to read Major L'Enfant's report to the Society for Useful Manufactures, of August 19th, 1792, to realize that intelligent city planning has not been a cultural development of our present generation. It is true that city planning of L'Enfant's day lacked our modern technique, but he gave to his job of that early day a lot of common sense that through the years has greatly distinguished him.

In that Paterson report of 140 years ago, four passages reflect the fundamental grasp he had on essentials. He recommended a departure from the conventional checker board system of street layout and supported it by a demonstration of what would happen when the right-angled streets dead ended up against a mountain side. The truth of his advice, though neglected then, is apparent today with dead end cross streets terminating on steep hill slopes, hard and costly to build and hard to maintain. Today but two major outlets are available in the large congested area of Grand and Spruce Streets.

He reserved as a civic center ("Public Building") the high central point of the town to be, from which point he recommended "carrying streets from thence . . . prolonging them at such distance as the town will enlarge."

He considered appropriate street layout as a method of increasing ratables and suggested "arrangement with owners of land whose property the prolongation of streets would increase in value."

He envisaged the future not only of Paterson but of the entire region by considering the avenues of approach and the means to promote its settlement. He would have preserved to posterity the beauty and charm of the Great Falls area and his concluding remark may well be considered a classic: "In work, especially of the nature of the one intended, real economy is to spare neither pains nor money to insure the success and the durability of the work."

As we see it, L'Enfant example ought to be followed and though we have for the moment a hard spot to get over we should encourage right thinking among men whom the ballot swings into office.

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NEW ROEBLING WIRE ROPE SPLICING BOOK

The John A. Roebling's Sons Company of Trenton, New Jersey, announce the publication of "The Splicing of Wire Rope." This book is a description of the proper methods of splicing wire rope and is of much interest. Containing many illustrations and detail it is sure to be read widely. Copies may be obtained by sending direct to the Roebling Company or the publisher of this magazine will be glad to forward a copy to interested subscribers.

GENERAL NEWS

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Officers and Directors Nominated

At the Semi-Annual Meeting recently held at Bigwin, Ontario, Canada, the following report of the nominating committee was presented:

Officers and Directors for 1933

President: A. A. Potter, Dean, Schools of Engrg., Purdue University, Lafayette, Ind.

Vice-Presidents: H. V. Coes, Consulting Management Engineer, Ford Bacon & Davis, Inc., 39 Broadway, New York, N. Y.; James D. Cunningham, President, Republic Flow Meters Corp., 2240 Diversey Parkway, Chicago, Ill.; C. F. Hirshfeld, Chief of Research Department, Detroit Edison Company, 2,000—2nd Avenue, Detroit, Mich.

Managers: R. L. Sackett, Dean of Engineering, Pennsylvania State College, State College, Pa.; Alexander D. Bailey, Superintendent Generating Station, Commonwealth Edison Company, 22nd & Fisk Streets, Chicago, Ill.; John A. Huntor, Prof. of M. E., University of Colorado, Boulder, Colo.

Delegates, American Engineering Council: B. R. Van Leer, Washington, D. C.; J. W. Roe, New York City; D. Robert Yarnall, Philadelphia; B. M. Brigman, Louisville, Ky.; Ernest Kreher, Tampa, Fla.; Hugo Diemer, Chicago, Ill.; W. A. Hanley, Indianapolis, Ind.; G. E. Pellissier, Holyoke, Mass.; W. S. Conant, Washington, D. C.; T. R. Weymouth, New York, N. Y.

The entire membership will participate by letter ballot in the election of the officers and directors. Balloting closes on September 27th, 1932.

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AS THE PRESIDENT SEES IT

Of the 10,000 or more young men who are being graduated from the various engineering schools of the country this summer, not as many as a third can hope to find jobs in their chosen profession for many months to come. Whether this situation entitles the rest to pity or to congratulation depends largely on the latter, for five, ten, and twenty years from now the best of them will be seizing opportunities for advancement and for public service of greater importance than engineers have ever had before. Indeed, it is said that one engineering school has recently discovered, by a canvass of its alumni, that it is precisely the men who were graduated in the midst of the major depressions of the past who have, on the whole, been most successful in after life.

However, the situation obviously demands that each of this year's graduates whose family can possibly meet the expense of carrying him for another year or two, should seize the opportunity thus afforded to broaden and deepen his academic preparation for his chosen career. This removal of himself from the competition for employment he owes to those of his less fortunate companions who are forced by dire necessity to get a job if they possibly can.

But he also owes it to himself. In the years to come the best-trained man is going the furthest, and in these depression years so many young men are continuing their studies after having received their first degree, that the competition in this particular age group is going to be unusually keen.

In particular, each financially fortunate graduate who is interested in research, development, or design would do wel to get at least a Master's and perhaps even a Doctor's degree in his chosen field. And the much larger group who will ultimately go into the business side of engineering, should devote at least a year either to the serious study of economics and industrial psychology in a university, or to the work of a first-class school of business. Even now there are plenty of opportunities for good men who have both engineering and business degrees, and the demand for them is sure to increase when business recovers.

Let me repeat. Let every 1932 engineering graduate who can possibly afford it, and who feels that he would be benefited by further training, stay out of this summer's competition for the ordinary jobs, and fit himself for a still keener competition for the best of the jobs of the not-far-distant future.

C. N. LAUER.

* * *

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

Elects Officers for 1932-33

Fourteen states and Canada are represented in the personnal of the officers and directors of A. I. E., for the coming year.

H. P. Charlesworth, vice-president, Bell Telephone Laboratories, Inc., New York, N. Y., was elected president of the American Institute of Electrical Engineers for the year beginning August 1, 1932, as announced at the annual meeting of the Institute held in Cleveland, Ohio, during the annual summer convention of the Institute. The other officers elected were: Vice-Presidents: J. Allen Johnson, Buffalo, N. Y.; E. B. Meyer, Newark, N. J.; K. A. Auty, Chicago, Ill.; G. A. Mills, Dallas, Tex.; C. R. Higson, Salt Lake City, Utah; Directors: G. A. Kositsky, Cleveland, Ohio; A. H. Lovell, Ann Arbor, Mich.; A. C. Stevens, Schenectady, N. Y. National Treasurer, W. I. Slichter, New York, N. Y., (reelected). Acting National Secretary, H. H. Henline.

These officers, together with the following hold-over officers, will constitute the Board of Directors for the next administrative year, beginning August 1: C. E. Skinner (retiring president), East Pittsburgh, Pa.; W. S. Lee, Charlotte, N. C.; W. B. Kouwenhoven, Baltimore, Md.; W. E. Freeman, Lexington, Ky.; P. H. Patton, Omaha, Neb.; A. W. Copley, San Francisco, Calif.; L. B. Chubbuck, Hamilton, Ont.; J. E. Kearns, Chicago, Ill.; F. W. Peek, Jr., Pittsfield, Mass.; C. E. Stephens, New York, N. Y.; A. B. Cooper, Toronto, Ont.; A. E. Knowlton, New York, N. Y.; R. H. Tapscott, New York, N. Y.; L. W. Chubb, East Pittsburgh, Pa.; B. D. Hull, Dallas, Texas; H. R. Woodrow, Brooklyn, N. Y.

The annual report of the Board of Directors, presented at the meeting, showed a total membership on April 30, 1932, of 17,550. In addition to three national conventions and two District meetings, 1,632 meetings were held during the year by the local organizations of the Institute in the principal cities and educational institutions in the United States, Canada, and Mexico.

* * *

AMERICAN SOCIETY OF CIVIL ENGINEERS

Sixty-Second Annual Convention

Some 250 members and guests attended the Summer Meeting of the Society, held July 6th to 9th at Yellowstone Park.

The proposed model law was approved and adopted by the Board of Directors at its meeting on July 5th. Many phases of engineering practice were discussed through the medium of prepared papers delivered before the several technical divisional groups.

Discussion of the subject of rigid frame bridges led to the contention by Leslie G. Holleran, Past-President of Westchester Chapter of the State Society that to Arthur G. Hayden, a member of that chapter, should be given the credit for developing rigid frame bridge construction in America.

President Crocker in his address discussed the present and future problems the engineer will have to contend with.

* * *

MEDICAL PRACTICE ACT VIOLATIONS

Brings Arrest of 12 Illegal Practitioners

The New York Times of recent date carries an item which indicates what other professions are doing and what engineers will eventually have to do.

STATE DRIVE ON QUACKS BRINGS ARREST OF 12

Dr. Rypins Promises That Every Illegal Practitioner Will Be Put Out of Business.

"Twelve men accused of practicing medicine without licenses have been arrested and arraigned in the last two days as the opening move of a drive sponsored by medical and health associations, to "eliminate the public menace of fraudulent practitioners."

Dr. Harold Rypins, secretary of the State Board of Medical Examiners who, with Deputy Attorney General Sol Ullman, is in charge of the cam

paign, asserted yesterday that "the State will prosecute every illegal practitioner until all are driven out of business or sent to jail."

The effort was undertaken, Dr. Rypins explained, at the request of such organizations as the New York County Medical Society, the New York Tuberculosis Association and the American Social Hygiene Association, after they had received many complaints that people in the poorer districts of the city and especially in Harlem were being victimized by persons not licensed to practice medicine.

Those arrested, he said have been arraigned before a magistrate and held in bail of $250 or $500 each for further hearing or for trial in Special Sessions."

* * *

THE BAYONNE ARCH DESCRIBED

By Leon S. Moisseiff

Under the title of "The Design, Materials and Erection of the Kill Van Kull (Bayonne) Arch" Leon S. Moisseiff, Advisory Engineer of Design for the Port of New York Authority, presents a most interesting and instructive description of the creation of the largest and one of the most beautiful of steel arches.

Beginning with an historical dissertation upon bridges and their significance in the development of civilization from tribal to the present highly integrated communal existence, the author outlines the various steps from legislation to completion of the project. Most of the description is intelligible to the layman and the whole presents a worth while picture of the great structure which was recently selected by the American Institute of Steel Construction as the most beautiful, long span, steel bridge opened to traffic during the year 1931.

The publication is in the form of a reprint from the Journal of the Franklin Institute before which it was originally presented in December 1931. Mr. Moisseiff has contributed a worthwhile and well prepared tract to the engineering literature of 1931.

ELECTRICAL ESTIMATING

Manual by Theodore Rurick Heinzerling

A complete and painstaking work has just come from the pen of Theodore Rurick Heinzerling a member of the Society.

Man-Hour Electrical Estimating Manual is the title of the new publication, which is a comprehensive work of some 800 pages in which are set forth data indispensible to the busy practitioner in the Electrical Construction and Installation field.

The author, whose enthusiasm for his work indicates a man in love with his profession, has compiled the results of ten years. The building construction industry has received detailed attention and the many tables some of which are unusually complete indicate great patience and precision in the compilation of this new reference work.

The publisher is the Rurick Press Inc. of 303 West 42nd Street, New York, N. Y. and the book is listed at $10.00.

Engineering Education

(Continued from Page 11)

tion. It was the opinion of the Committee that the existing list of recognized Schools of Engineering should be reconsidered by the Department, the committee agreeing to submit individually lists of such schools for reconsideration.

The committee considered a summarized comparison of the four-year course in civil engineering in the New York State Schools of Engineering prepared by the Education Department showing the average distribution of courses for 11 schools as follows:

English	9.8	hours
Foreign language	3.0	"
Mathematics	17.3	"
Natural sciences	22.8	"
Social sciences	5.7	"
Miscellaneous academic subjects, including physical training	20.9	"
Total non-technical courses	79.5	"
Total technical engineer-courses	70.0	"
Average semester hours for 11 schools	149.5	"

The average for 80 colleges of engineering in the United States in the same field, according to a study made by the S. P. E. E. in 1929, is 146.6 hours. The range of semester hours in 11 schools in New York State is from 129 to 181.

The committee was unanimous in its judgment that the Department ought not to fix any definite number of hours as the minimum requirement for the completion of a satisfactory four-year course in engineering, but was of the opinion that such a course should ordinarily include from 140 to 150 hours.

Professional Licensing Examinations

The Committee considered the scope and content of the professional licensing examination in engineering as announced by the Education Department in handbook 36, June 1931, and was advised by the Department that this examination as announced is subject to change as experience demonstrates the need of change. The Committee was unqualifiedly of the opinion that the Department should seek the advice and counsel of all the engineering institutions in the State before determining upon the final form and final content of the professional licensing examination. Further, the Committee recorded its judgment that the Department should exercise great care not to permit the licensing examination to impose standards in courses or in methods of teaching upon the schools and colleges.

Comment: The conference has made a report which, while indicating progress, does not appear to take cognizance of the objective in the minds of practising engineers generally.

The New York State Society has consistently pointed out the desirability of a single basic course leading to a Bachelor of Engineering for all students. Such a course would give a young man a thorough training in the sciences and the general principles of engineering. From such a foundation he could, either by scholastic education or practical experience and study, enter upon a field of specialization in the same manner as does the lawyer and doctor, who in general receive the degree of Bachelor of Laws or Doctor of Medicine before attempting to become experts in Corporation Law, International Law, Admiralty Law, Sur-

(Continued on Page 16)

*Fields of Engineering	Degrees Earned in Course				Professional Degree	Honorary Degree
	Bachelor's Degree. At least one year beyond completion of the professional requirement.	Bachelor's Degree. At least two years beyond completion of the pre-professional requirement.	Master's Degree. At least three years beyond completion of the pre-professional requirement.	Doctor's Degree. At least five years beyond completion. of the pre-professional requirement.	At least three years after bachelor's degree is earned.	When institution is authorized by charter to confer such a degree.
Chemical	B. S. or A. B.	B. Ch. E.	M. Ch. E.	D. Ch. E. or Ph. D.	Ch. E.	D. Eng. or Sc. D.
Civil	B. S. or A. B.	B. C. E.	M. C. E.	D. C. E. or Ph. D.	C. E.	D. Eng. or Sc. D.
Electrical	B. S. or A. B.	B. E. E.	M. E. E.	D. E. E. or Ph. D.	E. E.	D. Eng. or Sc. D.
Mechanical	B. S. or A. B.	B. M. E.	M. M. E.	D. M. E. or Ph. D.	M. E.	D. Eng. or Sc. D.
Mining	B. S. or A. B.	B. E. M.	M. E. M.	D. E. M. or Ph. D.	E. M.	D. Eng. or Sc. D.

*Any other recignized field of engineering to follow like nomenclature.

LICENSE LAW (Continued from Page 8)

No provision.	Written examinations may be supplemented by oral examinations. Section 1457.	No change. Section 1452.
No provision.	Upon recommendation of the board, the department may waive requirements for examination in the case of an applicant who possesses long established and recognized standing in the engineering profession, and who has either practiced lawfully for more than 12 years, or who was actively engaged in the practice of professional engineering in this state for at least 4 years prior to May 14, 1920, or who is a member of a national engineering society of a grade satisfactory to the board. Section 1457.	Upon recommendation of the board, the department may waive requirements for examination in the case of an applicant who possesses long established and recognized standing in the engineering profession, and who has either practiced lawfully for more than 12 years, or who was actively engaged in the practice of professional engineering in this state for at least 4 years prior to May 14, 1920. Section 1452.
No provision.	The board may exempt from examination an applicant who holds a license issued after examination by a board in any state or territory of the U. S., or in the District of Columbia, or credentials issued by the National Council of State Boards of Engineering Examiners, provided the requirements meet N. Y. State standards. Section 1457.	Upon the recommendation of the board, the department may exempt from examination an applicant for license who holds a license or certificate to practice issued to him upon examination by a legally constituted board of examiners in any state or political subdivision of the U. S., or who holds a certificate of qualification issued by the National Council of State Boards of Engineering Examiners, provided the requirement for such license or certificate was the full equivalent of the requirement in this state at the time it was issued and provided further, that the applicant's record fully met the requirements of this state in all respects other than examination. Section 1452.
No provision.	If an applicant fails in his first examination, he may be admitted to a second examination without the payment of an additional fee. Section 1457.	Wording changed slightly, but no change in provision. Section 1452.
Experience: Must have minimum of 4 years of practical experience satisfactory to the board. Section 1457.	**Experience:** Must have 8 years or more of practical experience of a grade and character satisfactory to the board. Section 1457.	**Experience:** No change. Section 1452.
Each 2 years of study, satisfactorily completed, of engineering in an approved engineering school shall be considered the equivalent of 1 year of active practice. Section 1457.	Each completed year of study in a registered college or school of engineering may be accepted in lieu of 1 year of experience. Section 1457.	No change. Section 1452.
No provision.	Subsequent to January 1, 1937, if the applicant is not a graduate of a registered college or school of engineering, he must have at least 12 years of practical experience satisfactory to the board, in order to be admitted to the examination. Section 1457.	No change. Section 1452.
Prima facie "evidence satisfactory to the board" that an applicant is fully qualified to practice.		
Six (6) years of practice, 1 of which shall have been in responsible charge of work. Section 1457.	No provision.	No provision.
Graduation from an accepted school or college with 4-year course, together with 4 years of practical experience, 1 of which shall have been in responsible charge of work. Section 1457.	No provision.	No provision.
	Licenses.	
The department shall, unless deemed otherwise advisable, issue a certificate of license to every person certified by the board as having passed the examination or as being otherwise qualified to receive it. Section 1458.	No change. Section 1458.	The department shall, unless it deems other procedure advisable, issue a license to every person certified by the board as entitled to receive it. Section 1453.
	Temporary Permits.	
No provision.	Upon the recommendation of the board and upon the payment of a fee of $25.00, the department may issue a temporary permit to practice to an	Practically the same provision except that the word "project" is substituted for the word "field." Section 1452.

	engineer who is not a citizen of the U. S. and who has not declared his intention of becoming a citizen, said applicant to be an engineer of established and recognized professional standing in his own country. This permit will allow the holder to practice, but only in the specific field for which it was granted. Section 1457.	
	Licenses previously granted.	
The issuance of a certificate of license by the department shall be evidence that the person named therein is entitled to all the rights and privileges of a licensed P. E. or L. S., while the said certificate remains unrevoked or unexpired. Section 1461.	No change. Section 1461.	A license as P. E. or L. S., heretofore duly issued under the laws of this state, shall serve the same purpose as, and is hereby declared to be, the license required by this law. Section 1450.
	Fees.	
$25.00, except when applicant applies for both P. E. and L. S., when the fee shall be $35.00. Section 1457.	$25.00, with the privilege of making a second application and of admittance to a second examination if applicant fails on first application or examination. Section 1457.	No change. Section 1452.
	LAND SURVEYOR.	
	Applications.	
Same as for P. E.	Same as for P. E.	Same as for P. E.
	Evidence to be submitted by applicant.	
Age: Not less than 21 years of age. Section 1457.	**Age:** More than 21 years of age. Section 1457.	**Age:** No change. Section 1452.
Citizenship: Must be a citizen of the U. S., or have made declaration of intention to become a citizen. Section 1457.	**Citizenship:** No change. Section 1457.	**Citizenship:** No change. Section 1452.
Character: Must be of good character and repute. Section 1457.	**Character:** Must be of good moral character. Section 1457.	**Character:** No change. Section 1452.
Use of English: Must be able to speak and write English. Section 1457.	**Use of English:** No provision.	**Use of English:** No provision.
Educational Requirements: No provision.	**Educational Requirements:** Satisfactory completion of a 4-year high school course, or the equivalent thereof, approved by the department, and such further educational requirements as the department may determine. Section 1457. Must successfully pass the prescribed examinations. Section 1457. The board may exempt from all or any part of the examinations, a graduate of a registered college or school of engineering. Section 1457.	**Educational Requirement:** Satisfactory completion of an approved 4-year high school course or the equivalent thereof as determined by the department. Section 1452. Must pass the prescribed examinations. Section 1452. No material change. Section 1452.

Comment: The American Engineer commends the Board and especially Secretary Finch for this splendid compilation. Every practising engineer as well as every prospective engineer should read and file for future reference this memorandum. It will be well worth his while to do so.

(Continued in Next Issue)

Engineering Education

(Continued from Page 14)

gery, Public Health, or other specialty of their respective professions.

The proposal overlooks several facts: 1st: No young man can expect to be accepted as a specialist. Regardless of the nature of his training, he is but an apprentice when he begins his career as he all too often learns to his sorrow when he seeks employment; 2nd: Every young man must qualify to practice engineering in accordance with the law of the State and the requirements of the Board of Licensing and both recognize all branches as part of one profession, requiring general knowledge of all in order to qualify. 3rd: The Unity of the profession is the expressed wish of the vast majority of those who today comprise the engineering calling and who from actual experience are in a position to know that both public and profession will benefit from such a principle. No lawyer or doctor would recommend dismembering his calling.

Attention is particularly directed to the concluding item in the report relevant to Professional Licensing Examination. This recommendation is contrary to good sense. The Licensing Board should unquestionably be the determining agency as to what qualifications Engineers shall be required to meet. The said Board represents the people and the profession of the State and the institutions of learning are making a mistake in attempting to ignore that fact. The profession is solidly behind the License Board and a conference of Educators and practising Engineers is a logical and effective means of harmonizing all viewpoints. The State Department of Education, in particular that most zealous and efficient representative, Dr. Horner, is to be commended for its efforts. The calling of a conference such as is above suggested is recommended to the Department.

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For an organization such as ours, with a widely scattered membership whose contact depends almost entirely upon the written word, a medium such as THE AMERICAN ENGINEER is almost essential. Heretofore, information and announcements reaching our members have been limited to the expensive and entirely inadequate system of occasional circularization by mail. Now, through the cooperation of the New York State Society of Professional Engineers we have a monthly forum that will not only be a vehicle for official Association announcements, but will reflect Chapter and individual activities which the circular system did not permit.

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HUGH A. KELLY, Secretary.

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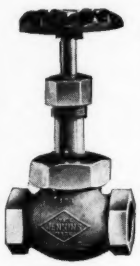

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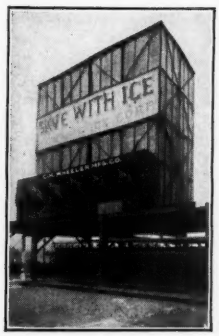

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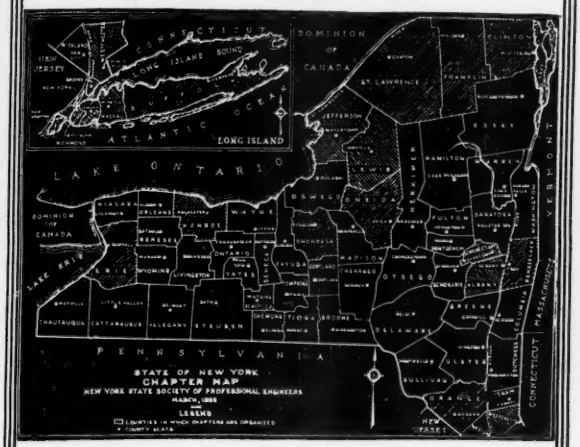

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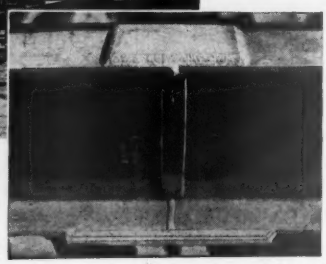

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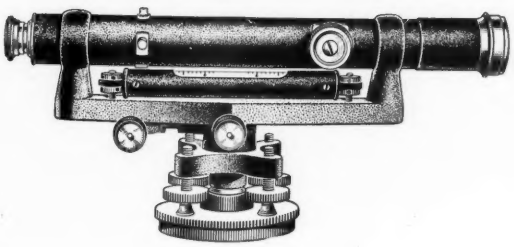

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